



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/555,652

09/21/2006

Geir Instanes

966917.000011

2196

32256

7590

03/31/2008

REED SMITH LLP

3110 FAIRVIEW PARK DRIVE

FALLS CHURCH, VA 22042

EXAMINER

SHAH, SAMIR M

ART UNIT

PAPER NUMBER

2856

MAIL DATE

DELIVERY MODE

03/31/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/555,652	Applicant(s) INSTANES ET AL.	
	Examiner SAMIR M. SHAH	Art Unit 2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 November 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Norway on 05/05/2003. It is noted, however, that applicant has not filed a certified copy of the 20032019 application as required by 35 U.S.C. 119(b).

Drawings

2. The drawings (figure 6) are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description, on page 6, 1st full paragraph, line 5: (a blemish/a recess) 60.

3. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because of the following informalities:
 - (a) As to page 1, 5th paragraph, line 1, delete "this can be defects" and replace it with --these can be defects--.
 - (b) As to page 4, last full paragraph, line 15, delete "adaptor module" and replace it with --adapter module--.
 - (c) As to page 4, last full paragraph, line 19, delete "dependant" and replace it with --dependent--.
 - (d) As to page 7, 1st full paragraph, line 2, delete "100, 102, 104" and replace it with --102, 104, 106-- to be consistent with the reference numbers used in figure 9.
 - (e) As to page 7, 2nd full paragraph, lines 11 and 12, delete "materialised" and replace it with --materialized--.
 - (f) As to page 8, line 6, delete "joins" and replace it with --joints--.
 - (g) As to page 9, 1st full paragraph, line 5, delete "to optimise" and replace it with --to optimize--.
 - (h) As to page 9, 2nd full paragraph, lines 2 and 5, delete "optimised" and replace it with --optimized--.

5. Appropriate correction is required.

Claim Objections

6. Claims 1-12 are objected to because of the following informalities:

Art Unit: 2856

- (a) As to claim 1, line 1, delete "Method" and replace it with --A method--.
- (b) As to claim 1, line 1, delete "the structural" and replace it with --structural--.
- (c) As to claim 1, line 3, delete "fitted on the" and replace it with --fitted onto the--.
- (d) Claim 1 recites the limitation "the solid material" in line 5. There is insufficient antecedent basis for this limitation in the claim.
- (e) As to claim 1, lines 6-7, delete "a sensor, or several sensors mutually spaced apart, is (are)" and replace it with --one or more sensors mutually spaced apart are--.
- (f) As to claim 1, line 8, delete "the sensor(s)" and replace it with --the one or more sensors--.
- (g) As to claim 1, line 10... claim 2, line 1... claim 3, line 1... claim 4, line 1... claim 5, line 2... claim 6, line 2... claim 7, line 1... claim 8, line 10... claim 9, line 1... claim 10, line 1... claim 11, line 1... and claim 12, line 1, delete "characterised" and replace it with --characterized--.
- (h) As to claim 1, line 10, delete "the sensor(s) measure(s)" and replace it with --the one or more sensors measure--.
- (i) Claim 1 recites the limitation "the solid pipe material" in lines 11-12. There is insufficient antecedent basis for this limitation in the claim.
- (j) As to claim 2, line 3, delete "active (emitting) and passive mode (receiving)" and replace it with either --an active mode and a passive mode-- or --emitting and receiving--.
- (k) As to claim 3, line 2, delete "by carrying out a so-called cross-bearing, i.e.," to avoid ambiguity and indefinite language in the claim.

Art Unit: 2856

(l) As to claim 4, lines 2-3, delete “formed by one of the sensors, a so-called master sensor, with the master sensor regulating” and replace it with --formed by a master sensor, wherein the master sensor regulates--.

(m) As to claim 7, line 3, delete “structure changes” and replace it with --structural changes--.

(n) As to claim 8, line 1, delete “System” and replace it with --A system--.

(o) Claim 8 recites the limitation "the solid material" in lines 4-5. There is insufficient antecedent basis for this limitation in the claim.

(p) As to claim 8, lines 7-8, delete “a sensor, or several sensors mutually” and replace it with --one or more sensors mutually--.

(q) As to claim 8, line 8, delete “the sensor(s) is(are)” and replace it with --the one or more sensors are--.

(r) As to claim 8, line 11, delete “sensor(s) are” and replace it with --one or more sensors are--.

(s) As to claim 9, lines 3-4, delete "active (emitting) and passive mode (receiving)" and replace it with either --an active mode and a passive mode-- or --emitting and receiving--.

(t) Claim 12 recites the limitation "the used frequency characteristics" in the last line. There is insufficient antecedent basis for this limitation in the claim.

7. Appropriate correction is required.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

(a) Regarding claims 1 and 8, the phrase "such as" (lines 2 and 13) renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

(b) Regarding claims 1 and 8, the phrase "and the like" (lines 2-3) renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "and the like"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

(c) Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps. See MPEP § 2172.01. Claim 1 is an improper method claim because there are no positive steps recited in the claim. The claim only recites structural limitations and steps that could be performed by such an apparatus but not any positive method steps.

Dependent claims 2-7 do not correct the above-mentioned defects in claim 1 and are, therefore, rejected for the same reason(s).

(d) As to claim 7, the phrase "is applied" is indefinite because the written specification does not use this terminology and therefore, it is not clear how exactly the "master sensor", "is applied". Moreover, it is not clear whether the claim is limited to using only a single "master sensor" and no other sensors to provide information about the material structure. If so, it is suggested that an appropriate phrase such as "only one single sensor" be used.

As claim 7 is indefinite and since the scope of the claim is not clear, it is not examined on the merits.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
12. Claims 1, 2, 5, 6, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. (US Patent 6,370,964 B1 henceforth "Chang").

(a) As to claims 1 and 8, Chang teaches a system and a method (figure 13) to register structural features in an acoustic conducting material (column 4, lines 36-43), where instrumentation (10) is permanently fitted onto the surface of the material (figure 1A; column 6, lines 4-20), whereby acoustic signals are emitted from said instrumentation (10) and received through the material, and also that changes in the received signals as a consequence of changes in the structure of the material are registered (figures 1A, 3A, 3B, 5A, 5B, 6; column 7, lines 1-34; column 9, lines 4-6, 22-31, 49-57; column 11, lines 7-22), wherein one or more sensors (14, 14a, 14b) mutually spaced apart are arranged in contact with the surface of the material (figure 1A, 5B, 6; column 6, lines 31-56), and the sensors (14, 14a, 14b) emit/receive acoustic signals to provide information about occurrences of defects in the solid material, and also the position of such defects (figures 5B, 13; column 11, lines 9-22), characterized in that the sensors measure the presence and location of a structural change by detecting changes in signal characteristics (figures 1A, 3A, 3B, 5A, 5B, 6; column 7, lines 1-34; column 9, lines 4-6, 22-31, 49-57; column 11, lines 7-22).

Note as to claim 1, no patentable weight is afforded to the limitations, following the phrase "such as" because these limitations are only considered to be examples. Therefore, the limitations "the sheet material of a pipe, a duct, container and the like"

Art Unit: 2856

and “frequency content and speed” are not afforded patentable weight. See 35 U.S.C. 112(2nd) rejection above.

As to claim 1, Chang does not expressly state that the presence and location of a structural change is based on the wall thickness of the material over a cross-section. However, Chang teaches “detection by diagnostic layer 10 of the location and size... of the damage” (column 9, lines 4-6) (emphasis added). Therefore, by measuring the “size” of the damage/structural change, Chang clearly includes changes/damages based on the wall thickness of the material over a cross-section/location of the damage.

(b) As to claims 2 and 9, Chang teaches, “each actuator/sensor 14 may be a single component, in which case the sensors and actuators are said to be not distinct from one another” (figure 1A; column 6, lines 37-41). Therefore, each sensor (14) can switch between an active mode (emitting signals) and a passive mode (receiving signals).

(c) As to claims 5 and 6, Chang teaches that when the sensors (14, 14a, 14b) emit and receive, respectively, acoustic signals with the same frequency, the signals are emitted with mutual time intervals (column 6, line 63 - column 7, line 1); whereas, when the sensors (14, 14a, 14b) emit and receive acoustic signals at different frequencies, the signals are emitted simultaneously or with mutual time intervals (column 10, lines 6-18).

Art Unit: 2856

13. Claims 1-6 and 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Derkacs et al. (US Patent 4,523,468 henceforth "Derkacs").

(a) As to claims 1 and 8, Derkacs discloses a system and method to register structural features in an acoustic conducting material of a pipe or tube (10) (figures 1, 2A-2C, 3; column 3, lines 20-40), where instrumentation is permanently fitted onto the surface of the material, by a "coupling medium in a collar (12), whereby acoustic signals are emitted from said instrumentation and received through the material (figures 1, 2A-2C, 3; column 3, lines 20-59), and also that changes in the received signals as a consequence of changes in the structure of the material are registered (figures 1, 2A-2C, 3; column 3, line 60 - column 4, line 32), wherein one or more sensors (A, B) mutually spaced apart are arranged in contact with the surface of the material, and the sensors (A, B) emit/receive acoustic signals to provide information about occurrences of defects in the solid material (figures 1, 2A-2C, 3; column 1, line 65 - column 2, line 13; column 4, lines 16-18, 33-44; column 5, lines 27-30), and also the position of such defects, characterized in that the sensors (A, B) measure the presence and location of a structural change by detecting changes in signal characteristics (figures 1, 2A-2C, 3; column 1, line 63 - column 2, line 33; column 4, lines 16-18, 33-44; column 5, lines 27-30).

Note as to claim 1, no patentable weight is afforded to the limitations, following the phrase "such as" because these limitations are only considered to be examples.

Therefore, the limitations "the sheet material of container and the like" and "frequency

Art Unit: 2856

content and speed” are not afforded patentable weight. See 35 U.S.C. 112(2nd) rejection above.

As to claim 1, Derkacs does not expressly state that the presence and location of a structural change is based on the wall thickness of the material over a cross-section. However, Derkacs teaches “accurate location and determination of defect dimensions (column 2, lines 40-42) (emphasis added). Therefore, by measuring the “dimensions” of the structural change/defect, Derkacs clearly includes changes/defects based on the wall thickness of the material over a cross-section/location of the damage.

(b) As to claims 2 and 9, Derkacs teaches each one of the transducers being able to alternatively switch between an active (transmitting) mode and a passive (receiving) mode (column 1, line 66 - column 2, line 13).

(c) As to claim 3, Derkacs teaches determining the position/location of a defect by carrying out triangulation, which collates distance and angle between a number of individual sensors and the defect (figures 1, 2A, 2C, 3; column 2, lines 29-33; column 4, lines 4-19).

(d) As to claims 4 and 10, Derkacs teaches a control unit that regulates the transmission and reception of acoustic signals by the sensors (A, B) by communicating with each individual sensor (A, B) (figures 1, 2A, 2B, 3; column 3, lines 40-59; 5, line 61 - column 6, line 11).

(e) As to claims 5 and 6, Derkacs teaches that when the sensors (A, B) emit and receive acoustic signals at different frequencies, the signals are emitted simultaneously or with mutual time intervals whereas, when the sensors (A, B) emit and receive acoustic signals at the same frequency, the signals are emitted with mutual time intervals (column 5, line 61 - column 6, line 11).

(f) As to claim 11, Derkacs teaches each individual sensor (A, B) being connected to the control unit via cables/wires (figures 1, 2A, 2B, 3).

(g) As to claim 12, Derkacs teaches the control unit being arranged to control the time of emission of acoustic signals from each sensor (A, B) (column 5, line 61 - column 6, line 11).

Conclusion

14. The prior art made of record and not relied upon, cited in the attached 892 form, is considered pertinent to applicant's disclosure.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samir M. Shah whose telephone number is (571) 272-2671. The examiner can normally be reached on Monday-Friday 9:30 am to 6:00 pm.

Art Unit: 2856

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Samir M. Shah

Art Unit 2856

03/25/2008

/Hezron Williams/

Supervisory Patent Examiner, Art Unit 2856